

sary antibiotic use. Public health campaigns may have an important role in improving appropriate antibiotic prescribing.

PHP9

ASSESSMENT OF DIAGNOSTIC NEED FOR MAGNETIC RESONANCE IMAGING IN MEDICARE PATIENTS WITH PACEMAKER IMPLANTS

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OBJECTIVES: To estimate the potential unmet need for Magnetic Resonance Imaging (MRI) among Medicare patients with pacemaker implants, via the prevalence of diagnoses and conditions for which MRI is the preferred investigation method. **METHODS:** The data analyzed comprised of fee-for-service portion of the 2008 Medicare patient population. Using this sample, two issues were examined: the prevalence of the diseases for which MRI is the preferred imaging modality, and the uptake rates of all imaging modalities for MRI-indicated beneficiaries with pacemaker implants compared with those having no implants. For each of those diseases for which MRI is the preferred modality we also identified any trade-offs between lower MRI rates and higher rates for other imaging modalities in pacemaker-implanted compared with non-implanted patients. **RESULTS:** There was almost no use of MRI in the pacemaker-implanted population, whereas 13% of patients without any kind of implant received an MRI in 2008. Clinical practice appears in line with the contraindication for MRI in pacemaker-implanted patients. Cancer of the CNS and suspected Stroke are conditions which require timely, accurate imaging for good therapeutic decision making. A total of 73% and 41% of non-paced subjects received whole body MRI for these conditions respectively, compared with 1% of paced subjects for each disease. Similar diagnostic discrepancies were observed for Motion disorders, Dementia, Chronic orthopaedic pain and spinal disorders. Pacemaker implanted patients also had high rates of co-morbidities. **CONCLUSIONS:** There seems to be a large unmet clinical need for pacemakers and other implanted cardiac devices which allow MRI to be used as a diagnostic method. The very high rate of MRI use in non-implanted patients with acute, progressive and often fatal conditions of stroke and cancer, and its absence of use in the same patient groups with implants is a concern. The use of MRI conditional cardiac devices would facilitate greater diagnostic method choice.

PHP10

THE MARGIN BETWEEN ACQUISITION COSTS AND REIMBURSEMENT PRICES OF GENERIC DRUGS (YAKKASA) IN JAPAN: CURRENT STATUS AND DETERMINANTS

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OBJECTIVES: The margin between the price of a drug and its reimbursement price (yakkasa) is determined by negotiation between wholesalers and medical institutions in Japan. The Ministry of Health, Labour and Welfare (MHLW) claims that the yakkasa reflects the market value of drugs. Factors, however, influencing the yakkasa have not been clarified. The aim of this study was to investigate the current status and determinants of the yakkasa of generic drugs. **METHODS:** The reimbursement price of a drug, which is determined by the MHLW in Japan, decreases in proportion to the yakkasa every two years. To calculate the yakkasa, we used the drug price lists of 2006, 2008, and 2010. We identified generic drugs with a higher percentage margin for each year, and averaged the yakkasa by drugs. We then investigated longitudinal trends in the range of the yakkasa. Furthermore, we explored factors associated with the larger percentage margin. **RESULTS:** The generic drugs with a higher percentage margin were: doxazosin mesilate (30.7%), famotidine (29.7%), and manidipine hydrochloride (29.6%) in 2006; ofloxacin (31.1%), cefazolin hydrochloride (27.4%), and actarit (25.8%) in 2008; and ofloxacin (24.1%), cefazolin hydrochloride (23.2%), and levofloxacin (22.5%) in 2010. The yakkasa was correlated with the logarithmic capital of generic manufacturers, i.e., generic drugs developed by larger companies had smaller margin. The coefficient of variance for the yakkasa decreased every two years with the revision of drug prices. **CONCLUSIONS:** The generic drugs prescribed frequently or developed recently had a higher percentage margin. The relationship between the yakkasa and capital might signify the fact that more competitive manufacturers tend to pay smaller margin, since medical institutions have no incentive to buy drugs from smaller manufacturers, unless the margin is larger.

PHP11

TIME TRENDS AND DETERMINANTS OF PHARMACEUTICAL EXPENDITURE IN CHINA IN 1990-2009

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OBJECTIVES: China's national pharmaceutical system has multiple Objectives: to develop the domestic pharmaceutical industry and encourage innovation, to control total pharmaceutical expenditure (TPE) which represents the largest component of total health expenditure (THE) in China, and to ensure equities for poor and uninsured patients. The challenges to the current system with distorted market incentives resulted in unaffordable drug costs and questionable prescribing practices that undermine public health. This study intended to examine the time trends and determinants of total pharmaceutical expenditure in China. **METHODS:** Total pharmaceutical expenditures over 1990-2009 were explained by amount of prescriptions dispensed, proxy of health utilization, and price index over years including medical CPI. Data from China National Health Accounts Report was used. Time trends of TPE as share of THE (TPE/THE) and of GDP (TPE/GDP), and the relationship

between TPE and GDP were examined descriptively. The growth of TPE was examined after adjusting for health utilization. Determinants of TPE/THE and TPE/GDP were investigated by time-series regression models. **RESULTS:** Descriptive analyses showed TPE/THE and TPE/GDP grew over the years 1990-2009. THE/GDP grew faster in the recent few years than TPE/GDP. TPE per visit still rose over years after adjusting for health utilization (inpatient and outpatient services). However, health utilization was not shown the growth pattern along with the GDP growth over 1990s. Time-series analyses showed TPE/THE was negatively influenced by GDP ($p = 0.039$) and medical CPI ($p = 0.021$). TPE/GDP was positively influenced by price index of prescriptions ($p = 0.000$) and amount of health service use including inpatient ($p = 0.012$) and outpatient visits ($p = 0.003$). **CONCLUSIONS:** Both TPE and THE increased over time with the pace of GDP growth. The study provided evidence of increasing economic burden on patients imposed by TPE in China. Rapid growth in the China economy, however, may ameliorate the overall TPE burden.

PHP12

THE EVALUATION OF VACCINE REFRIGERATOR TEMPERATURE SURVEY CONDUCTED BY PRIMARY CARE UNITS OF SONGKHLA HOSPITAL

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OBJECTIVES: To evaluate the quality and improve the quality control of vaccine refrigerators at primary care units; PCU. **METHODS:** It was a quasi-experimental study; pre-post intervention descriptive design was studied. Computerized Transit temperature data loggers were used to monitor vaccine refrigerator temperatures at 19 PCU under the authority of Songkhla hospital. Data loggers, monitoring temperatures from -40°C to $+85^{\circ}\text{C}$, were programmed to record every 30 minutes for 15 days. Percentage of frequency which temperatures were out of $2-8^{\circ}\text{C}$ range and maximum/minimum temperatures had been used for this evaluation. Results of the study were sent back to PCU for adjustment. Post adjustment data were collected for assessment. **RESULTS:** Vaccine Refrigerators at PCU were household models. Refrigerator ages average is 7.37 years. Before intervention, average percentage of frequency, which temperatures were $<2^{\circ}\text{C}$ and $>8^{\circ}\text{C}$, was 13.76% and 2.03% (range 0%-81% and 0%-11.23% respectively). 19 units recorded temperatures below 2°C and above 8°C at one point. The lowest and highest temperatures recorded were 26.20°C and -7°C . After assessment, 8 units required modifications and 11 units got new refrigerators. Refrigerators age average was 2.68 years. Average percentage of frequency, temperatures $<2^{\circ}\text{C}$ and $>8^{\circ}\text{C}$, was 3.31% and 0.88% (range 0%-51.48% and 0.88%-5.34% respectively). 6 units had no out of range temperatures. The lowest and highest temperatures were -2.5°C and 19°C . The percentage of frequency was decreased in 18 units but not statistically significant. However, the lowest and highest temperatures was statistically significant decreased ($p\text{-value} = 0.004, 0.013$ respectively). **CONCLUSIONS:** Using data logger feedback can help maintain vaccine cold chain standard ($2-8^{\circ}\text{C}$). A data logger should be used continually to monitor temperature in a vaccine refrigerator.

PHP13

AFFORDABILITY OF ANTIBACTERIAL MEDICINES IN IRAN DURING 2001-2010

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OBJECTIVES: Affordability is one of the main objectives of national drug policies but there are no clear indicators to determine whether a medicine is affordable. The share of medication in consumer basket, comparing to Gross Domestic Product (GDP) per capita and comparing to the daily income of the lowest paid worker in the government have been some methods to judge about the affordability. This study tries to investigate affordability of antibacterial therapy in Iran during last decade (2001-2010). **METHODS:** Annual sales of antibacterial medicines for systemic use (J01 based on ATC classification) were gathered from Ministry of Health and were crosschecked by sample data from suppliers and distributors. The cost of medicines according to DDD (Defined Daily Dose) was calculated in Iranian Rials (IRR) and Dollars (USD) based on average exchange rate in each year. These costs were compared to GDP per capita, the salary of lowest paid worker in MOH and standard cost of household basket which officially announced by the central bank. **RESULTS:** Tetracyclines (J01A) and Sulfonamides (J01E) were the cheapest antibacterial treatments while Amphenicols (J01B) and unclassified antibacterials such as Vancomycin (J01X) were the most expensive treatment for bacterial infections. The average cost of antibacterial medicines was 0.3USD/DDD which equals to 3.5% of daily income of the lowest paid worker and 2.5% of daily GDP/capita. The trend of comparative costs did not show any significant changes during the period. **CONCLUSIONS:** A moderate growth was observed in daily cost of antibacterial therapy while IRR is the unit of measurement. But when the currency changes to USD or when costs compare to daily income of the lowest paid worker or to GDP/Capita, No growth was observed. Apart from changes of the trends, the cost of antibacterial therapy was too cheap to put a catastrophic expense on the health system.

PHP14

THE IMPLEMENTATION OF ESSENTIAL MEDICINE POLICY IN CHINA: PROS AND CONS

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Establishing essential medicine policy (EMP) is one of 5 health system reform pillars in China in 2009. After three-year implementation, the strengths and weaknesses of EMP need to be monitoring and evaluation. **OBJECTIVES:** The paper reviews the process of listing, pricing, purchasing, utilization and reimbursement of essential medicines and discusses the achievements and issues of EMP. **METHODS:**